

Claims

What is claimed is:

1. A catalytic converter assembly, comprising:
a substrate;
a housing having at least one inlet port and at least one outlet port;
the at least one inlet and the at least one outlet being in fluid communication such that gases flow through the at least one inlet into the housing and out of the housing through the at least one outlet;
the housing being adapted to receive the substrate;
the substrate at least partially disposed between at least one of the at least one inlet and at least one of the at least one outlet;
at least one deflector;
the at least one deflector having at least one surface;
the at least one deflector being moveably connected to the housing at a location generally between at least one of the at least one inlet and the substrate; and
the at least one deflector being configured to substantially equalize the mass flow rate of the gases across the at least one surface as the gases flow through the at least one inlet into the housing and out of the housing through the at least one outlet.
2. The assembly of claim 1, wherein the at least one deflector includes a generally polyhedron portion having a leading surface and a trailing surface separating a top surface and a bottom surface.

3. The assembly of claim 2, wherein the polyhedron has left and right side surfaces and the polygons defining the leading and left and right side surfaces have at least one pair of opposite sides being parallel.

4. The assembly of claim 3, wherein at least one surface is at least somewhat curved.

5. The assembly of claim 4, wherein the deflector includes at least one protrusion at least one of extending from, attached to and formed integral with at least one of the top surface and bottom surface.

6. The assembly of claim 5, wherein the protrusion is an ear.

7. The assembly of claim 5, wherein the at least one deflector is movably connected to the housing by a pin joint.

8. The assembly of claim 5, wherein the at least one deflector being configured to selectively impede the flow of gases through the housing.

9. The assembly of claim 5, wherein the housing includes at least one vane to direct the gases from the deflector to the substrate.

10. A method of distributing gases within a catalytic converter assembly, comprising the steps of:

flowing gases through at least one inlet into a housing and out of the housing through at least one outlet;

disposing a substrate at least partially between at least one of the at least one inlet and at least one of the at least one outlet; and

substantially equalizing the mass flow rate of the gases across at least one surface of a deflector as the gases flow through at least one of the at least one inlet into the housing and out of the housing through at least one of the at least one outlet.

11. The method of claim 10, including the step of substantially impeding the flow of gases through the housing by selectively moving the deflector.

12. A catalytic converter assembly, comprising:
a substrate;
a housing having at least one inlet port and at least one outlet port;
the at least one inlet and the at least one outlet being in fluid communication such that gases flow through the at least one inlet into the housing and out of the housing through the at least one outlet;
the housing being adapted to receive the substrate;
the substrate at least partially disposed between at least one of the at least one inlet and at least one of the at least one outlet;
at least one deflector;
the at least one deflector having at least one surface;
at least one protrusion at least one of extending from, attached to and formed integral with at least one of the at least one surface;
the at least one deflector being moveably connected to the housing at a location generally between the substrate and at least one of the at least one inlet such that the gases flow across the at least one surface as the gases flow through the at least one inlet into the housing and out of the housing through the at least one outlet.

13. The catalytic converter assembly of claim 12, wherein the at least one deflector includes a generally ellipsoid portion.

14. The catalytic converter assembly of claim 13, wherein the at least one protrusion includes a generally torroid portion.

15. The assembly of claim 12, wherein the at least one deflector includes a generally polyhedron portion having a leading surface and a trailing surface separating a top surface and a bottom surface.

16. The assembly of claim 15, wherein the polyhedron has left and right side surfaces and the polygons defining the leading and left and right side surfaces have at least one pair of opposite sides being parallel.

17. The assembly of claim 16, wherein at least one surface is at least somewhat curved.

18. The assembly of claim 17, wherein the protrusion is an ear.

19. The assembly of claim 17, wherein the at least one deflector is movably connected to the housing by a pin joint.

20. The assembly of claim 17, wherein the at least one deflector being configured to selectively impede the flow of gases through the housing.

21. The assembly of claim 17, wherein the housing includes at least one vane to direct the gases from the deflector to the substrate.

22. A deflector for use in a catalytic converter assembly, comprising:

a generally polyhedron portion having a leading surface and a trailing surface separating a top surface and a bottom surface; and

at least one protrusion at least one of extending from, attached to and formed integral with at least one of the top surface and bottom surface.

23. The assembly of claim 22, wherein the polyhedron has left and right side surfaces and the polygons defining the leading and left and right side surfaces have at least one pair of opposite sides being parallel.

24. The assembly of claim 23, wherein at least one surface is at least somewhat curved.

25. The assembly of claim 24, wherein the protrusion is an ear.